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OF THE
BIOLOGICAL SOCIETY OF WASHINGTONADENOMERA LUTZI (AMPHIBIA:
LEPTODACTYLIDAE), A NEW SPECIES
OF FROG FROM GUYANA

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Three specimens of a distinctive frog were catalogued as *Leptodactylus hylaedactylus* in the collections of the British Museum (Natural History) (BMNH). Through the courtesy of Alice G. C. Grandison I have recently been able to examine the specimens and partially dissect one of them. The three specimens represent a distinctive new species of the genus *Adenomera*. The three specimens were catalogued in 1872 and 1905. Interestingly, I was not able to locate further specimens in the extensive Guyana collections at the American Museum of Natural History. The genus *Adenomera* has recently been reviewed (Heyer, 1973, 1974); the purpose of this paper is to call attention to the addition of this distinctive new species to the genus.

Adenomera lutzi, new species

Figure 1

Holotype: BMNH 1905.11.1.17, adult male from Guyana, Chinapoon R., upper Potaro (probably Chenapowu River). Dr. Bovallius, collector.

Paratypes: BMNH 1872.10.16.43-44, females, from Guyana, Demerara Falls.

Diagnosis: *Adenomera lutzi* differs from all other species in the genus by its large size (male 30 mm, males of other species range from 23.4-27.0 mm maximum SV; females to 34 mm, females of other species range from 24.5-31.0 mm maximum SV), presence of a dark triangular seat patch (absent in other species), and distinct spotting on the posterior face of the thigh (mottled or uniform in other species).

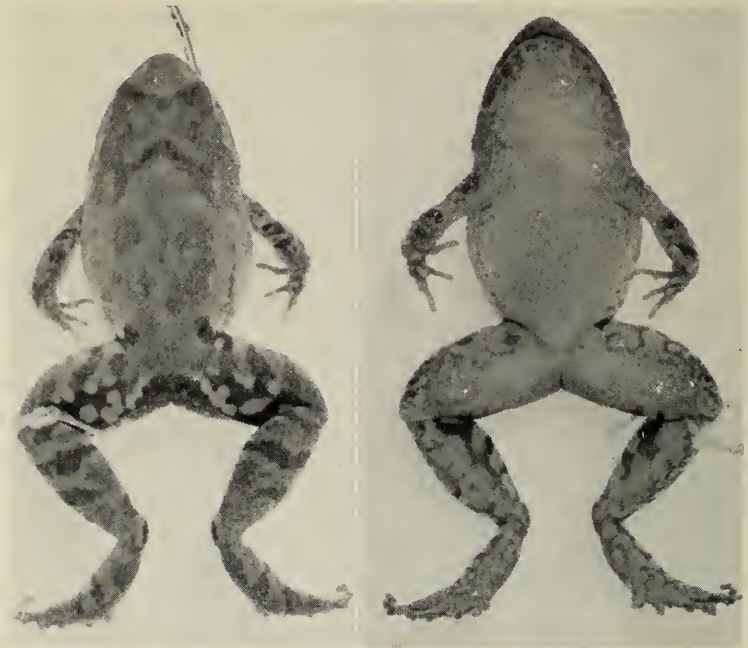


FIG. 1. Dorsal and ventral views of the holotype of *Adenomera lutzi*.

Description of holotype: Dorsal outline of snout subelliptical; snout profile rounded-acute; canthus rostralis rounded; loreal slightly concave in cross section; tympanum distinct, greatest diameter $\frac{1}{2}$ eye diameter; vomerine teeth in two transverse series posterior to choanae; vocal slits elongate, paired; no external vocal sac; finger lengths in order of decreasing size III > I > II > IV; first finger just longer than second; large ovoid inner metacarpal tubercle smaller than ovoid outer metacarpal tubercle; dorsal surfaces including eyelids profused with small warty tubercles; short glandular ridge behind each eye; faint indications of mid-dorsal and dorsolateral glandular folds; belly fold distinct; toe tips expanded into small disks, disks not flattened, no circumferential groove; toes lacking fringe; subarticular tubercles pronounced; distinct oval inner metatarsal tubercle larger than distinct rounded outer metatarsal tubercle; tarsal fold not continuous with inner metatarsal tubercle, extending $\frac{7}{8}$ length of tarsus; sole of foot with large white tubercles, lower surface of tarsus profused with small white tubercles.

Snout-vent 30.1 mm; head length 11.1 mm; head width 11.2 mm; interorbital distance 2.4 mm; greatest diameter of tympanum 1.7 mm;

eye diameter 3.0 mm; eye-nostril distance 2.8 mm; femur 13.4 mm; tibia 14.6 mm; foot 14.9 mm.

Dorsum tan in preservative with darker brown markings on ridges behind eyes, chevron in shoulder region and two round sacral spots above groin; lips and dorsal limb surfaces barred; circumferential parts of venter mottled, belly lacking melanophores; dark brown triangular seat patch; posterior surface of thigh dark brown with bold white round and elongate spots.

Variation: The female paratypes measure 33.6 and 34.1 mm SV. The vomerine teeth are contiguous in one of the specimens. The color patterns are similar to the holotype with the following differences: dark interorbital bars are distinct in the paratypes, indistinct in the holotype; one paratype has dark brown stripes along $\frac{2}{3}$ the body length in the dorsolateral fold region; the posterior face of the thighs are not as boldly marked in the paratypes; in the most differently marked paratype, the dark brown seat patch continues as a uniform brown on the thighs with small light spots above and below the uniform brown.

Etymology: The species is named in honor of the late Adolfo Lutz, a Brazilian pioneer in herpetology. Dr. Lutz was the first worker with field experience to call attention to the distinctiveness of the frogs comprising the genus *Adenomera*.

ANATOMICAL SUMMARY

One paratype, BMNH 1872.10.16.43, was partially dissected to determine certain muscle and skeletal character states. The other paratype was X-rayed to determine the shape of the terminal phalanges. Origin of depressor mandibulae muscle mostly from dorsal fascia, with some fibers originating from the squamosal bone and the annulus tympanicus. Adductor mandibulae posterior subexternus present, adductor mandibulae externus superficialis absent. Geniohyoideus medialis muscle continuous medially (Heyer, 1974, Fig. 2, O). Geniohyoideus lateralis muscle lacking attachment or slip to hyale. Anterior petrohyoideus muscle inserting on ventral surface of alary process of hyoid (Heyer, 1974, Fig. 1, G). Sternohyoideus muscle insertion on ventral body of hyoid (Heyer, 1974, Fig. 1, I). Omohyoideus muscle insertion on ventral surface of hyoid plate (Heyer, 1974, Fig. 4, 2). Iliacus externus muscle extending full length of iliac bone. Tensor fasciae latae muscle inserting posterior to iliacus externus muscle on iliac bone. Exterior head of semitendinosus muscle absent. Sartorius muscle broad, covering adductor longus muscle. Accessory head of adductor magnus muscle ending proximally in a tendon. Adductor longus muscle well developed, inserting on knee. Anterior process of hyale absent. Alary process of hyoid broad and winglike (Heyer, 1974, Fig. 1, G). Omosternum slightly expanded anteriorly. Mesosternum a bony style. Xiphisternum cartilaginous, entire, single. Terminal phalanges T-shaped.

All known myological and osteological character states of the new species agree with the previous definition of the genus (Heyer, 1974). The new species extends the known snout-vent length from 27.0 mm to 30.1 mm in males, and 31.0 to 34.1 mm in females.

DISCUSSION

The relationships among the species of the genus *Adenomera* remain obscure. There are few morphological specializations shared by two or more species on which to base an analysis of relationships. The most suggestive characters are in the hyoid complex. The new species and *A. martinezi* share the states of the anterior petrohyoideus inserting on the ventral surface of the hyoid apparatus and a broad winglike alary process of the hyoid. Previously, I considered these as derived states (Heyer, 1974). If these states are derived, then *A. lutzi* and *martinezi* are the most closely related species in the genus *Adenomera*. My subjective impression is the opposite, however. The four species *A. andreae*, *bokermanni*, *hylaedactyla*, and *marmorata* form a tight cluster and are distinguished from each other by subtle morphological differences. On the other hand, *A. lutzi* and *martinezi* are the most distinctive species in the genus and very distinctive from each other. In the case of *Adenomera*, it appears that a broad winglike alary process and ventral insertion of the anterior petrohyoideus muscle are primitive states. Resolution of the intrageneric relationships may well require biochemical and/or more karyotypic information.

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